

### Amendments to the Claims

1. (original) Method for the manufacture of a high temperature superconducting layer on a substrate (1a, 1b) comprising the following steps:
  - a. deposition of an  $\text{RBa}_2\text{Cu}_3\text{O}_7$ -layer (2) onto the substrate (1a, 1b) with a low growth rate, wherein R represents yttrium, an element of the group of rare-earth elements (atomic number 57-71) or mixtures of two or more of these elements;
  - b. deposition of an  $\text{XBa}_2\text{Cu}_3\text{O}_7$ -layer (3) onto the  $\text{RBa}_2\text{Cu}_3\text{O}_7$ -layer (2) with a high growth rate, wherein X represents yttrium, an element of the group of rare-earth elements (atomic number 57-71) or mixtures of two or more of these elements.
2. (original) Method according to claim 1, wherein the low growth rate is  $< 1\text{ nm/s}$  and wherein the high growth rate is  $> 1\text{ nm/s}$ , preferably  $> 2\text{ nm/s}$ .
3. (currently amended) Method according to claim 1 ~~or 2~~, wherein the  $\text{RBa}_2\text{Cu}_3\text{O}_7$ -layer (2) comprises a thickness of  $< 500\text{ nm}$ , preferably  $< 100\text{ nm}$ .
4. (currently amended) Method according to ~~one of the claims 1-3~~ claim 1, wherein the  $\text{RBa}_2\text{Cu}_3\text{O}_7$ -layer (2) has a thickness of  $> 5\text{ nm}$ .
5. (currently amended) Method according to ~~one of the claims 1-4~~ claim 1, wherein the  $\text{XBa}_2\text{Cu}_3\text{O}_7$ -layer (3) has a thickness of  $> 1\mu\text{m}$ .
6. (currently amended) Method according to ~~one of the claims 1-5~~ claim 1, wherein the  $\text{RBa}_2\text{Cu}_3\text{O}_7$ -layer (2) is deposited onto an at least biaxially textured substrate (1a) or a substrate with an at least biaxially textured buffer layer (1b).
7. (currently amended) Method according to ~~one of the claims 1-6~~ claim 1, wherein the  $\text{XBa}_2\text{Cu}_3\text{O}_7$ -layer (3) is deposited as a precursor layer, comprising the metal components of the high temperature superconducting layer.

8. (original) Method according to claim 7, wherein the precursor layer is transformed in a further method step by a temperature treatment with a high transformation rate into a superconducting  $\text{XBa}_2\text{Cu}_3\text{O}_7$ -layer (3).

9. (original) Method according to claim 8, wherein the transformation rate is  $> 2 \text{ nm/s}$ .

10. (currently amended) Method according to ~~one of the claims 1-9~~ claim 1, wherein R represents a rare-earth element with a great ion radius (La, Pr, Nd, Sm, Eu, Gd) or compounds comprising to at least 50% these elements in mixtures with other rare-earth elements.

11. (currently amended) Layer system of a high temperature superconductor manufactured according to ~~a the method of any of the claims 1-10~~ claim 1.